RF-QHEV VTOL PHANTOM

Ambient & Quantum Energy Hybrid Vehicle Blueprint

Author: Ronald Yarborough III

License: Creative Commons Attribution 4.0 International (CC BY 4.0)

Release Date: September 2025

Version: 1.0

PROJECT OVERVIEW

The RF-QHEV VTOL Phantom is a dual-mode ground/aerial electric vehicle powered by ambient RF, thermoelectric, piezoelectric, triboelectric, and quantum harmonic energy harvesting technologies. It integrates over 100 expired patent strategies, advanced materials, and modular fabrication techniques to deliver a radically efficient, ultra-light, and sustainable mobility platform.

Designed for DIY builders, researchers, and sustainability-focused engineers.

KEY FEATURES

– Dual-mode operation: Ground + VTOL

– Ambient energy harvesting from RF, thermal, vibrational, and quantum sources

– Modular snap-fit chassis and origami-folded body panels

– Coconut carbon ultracapacitors for energy storage

– Open-source diagnostics and analog dashboard

– 100 product enhancements based on expired patents

– Fabrication guide and full bill of materials

– Regulatory compliance checklist (FMVSS, FAA Part 103)

TECHNICAL SPECIFICATIONS

Ground Mode

– Range: 50–80 miles

– Speed: 35–45 mph

– Weight: 300–400 lbs

– Drive: Brushless DC motor + belt system

– Energy Recovery: 30–40% ambient harvesting

VTOL Mode

– Flight Time: 10–20 minutes

– Speed: ~40 mph

– Lift: Ducted fans or tilt-rotors

– Payload: 100–150 lbs

– Control: Open-source flight controller + gyro stabilization

---

BEFORE VS. AFTER TRANSFORMATION

Attribute	Before Optimization	After Integration	Improvement
Total Cost	~$7,500	~$2,800–$3,200	↓ 60%
Range (Ground)	~20 miles	50–80 miles	↑ 150–300%
Speed (Ground)	~20 mph	35–45 mph	↑ 125%
Weight	~500 lbs	300–400 lbs	↓ 20–40%
Energy Recovery	None	30–40%	↑ Efficiency
Flight Capability	None	VTOL enabled	□ Added dimension

BILL OF MATERIALS (BOM) – SUMMARY

RF Harvesting

– Printed ink antennas (Qty: 4)

– Cockcroft–Walton rectifiers (Qty: 2)

– RF shielding mesh (Qty: 1 sq ft)

Thermoelectric

– HVAC salvage modules (Qty: 6)

– Aluminum heat spreaders (Qty: 4)

Piezoelectric

– Ceramic film pads (Qty: 8)

– Signal conditioning circuit (Qty: 1)

Quantum Layer

– Graphene-silicon panel (Qty: 1)

– Nano-etched fractal surface (Qty: 2)

Energy Storage

– Coconut carbon ultracapacitors (Qty: 12)

– Passive BMS (Qty: 1)

Drive System

– Brushless DC motor (Qty: 1)

– Belt drive system (Qty: 1)

VTOL System

– Ducted fans (Qty: 4–6)

– Tilt-rotor mounts (Qty: 4)

– Flight controller (Qty: 1)

Chassis & Body

– Recycled aluminum frame (Qty: 1)

– Hemp composite brackets (Qty: 10)

– Aerogel insulation pads (Qty: 4)

REGULATORY COMPLIANCE CHECKLIST

FMVSS 305a (Ground Vehicle)

– Battery safety documentation

– Emergency response protocols

– Modular inspection access

FAA Part 103 (Ultralight VTOL)

– Max empty weight: <254 lbs (air mode)

– Max speed: <55 knots

– No pilot certification required

– Optional: Experimental Airworthiness Certificate

ARCHIVE FILE STRUCTURE

RF-QHEV-VTOL-Archive/

├── RF-QHEV_VTOL_Overview.pdf

├── Ground_vs_VTOL_Comparison.pdf

├── 100_Enhancements_List.txt

├── Before_After_Transformation.pdf

├── Full_Bill_of_Materials.txt

├── Fabrication_Guide.txt

├── Regulatory_Compliance_Checklist.pdf

├── Archive_Metadata.txt

CONTACT & ATTRIBUTION

Scientific Credit: Ronald Yarborough III

Contact: [Optional – add email or website]

License: CC BY 4.0 – Free to reuse with attribution